WBS ELEMENT	SHEET NO.
41294, 8CR.20621.6	1

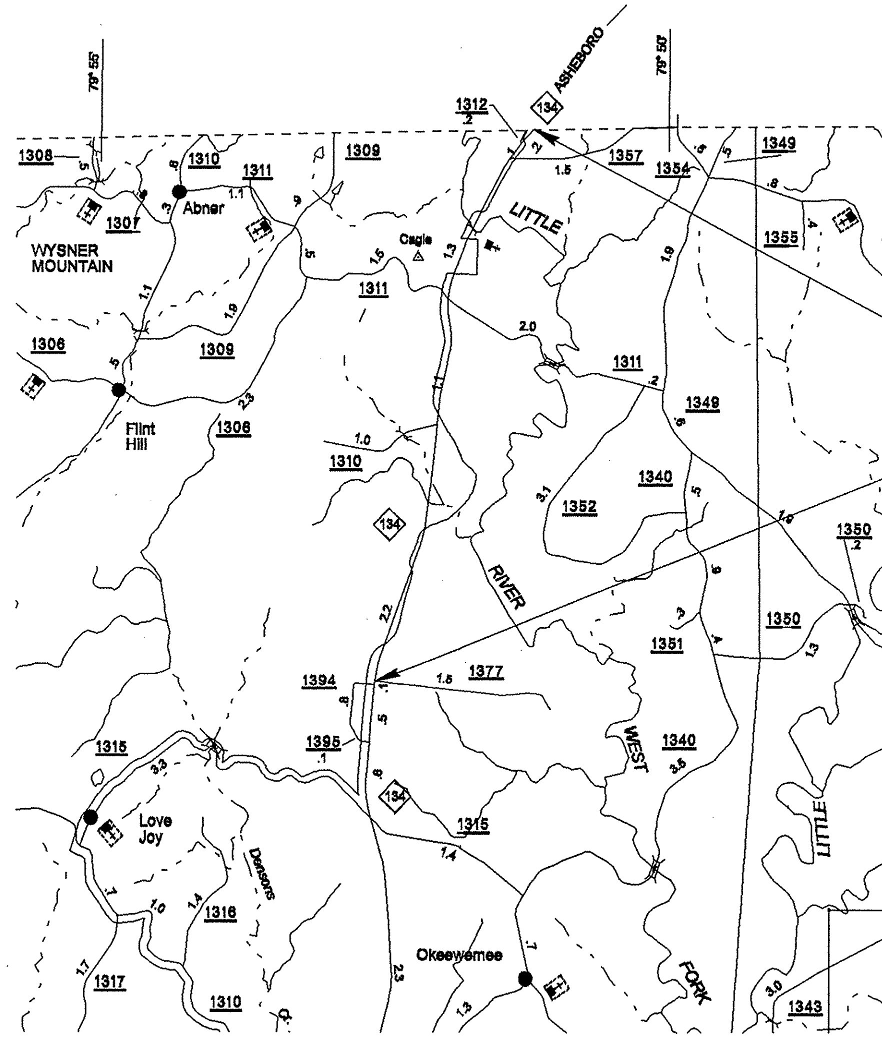
C 201724

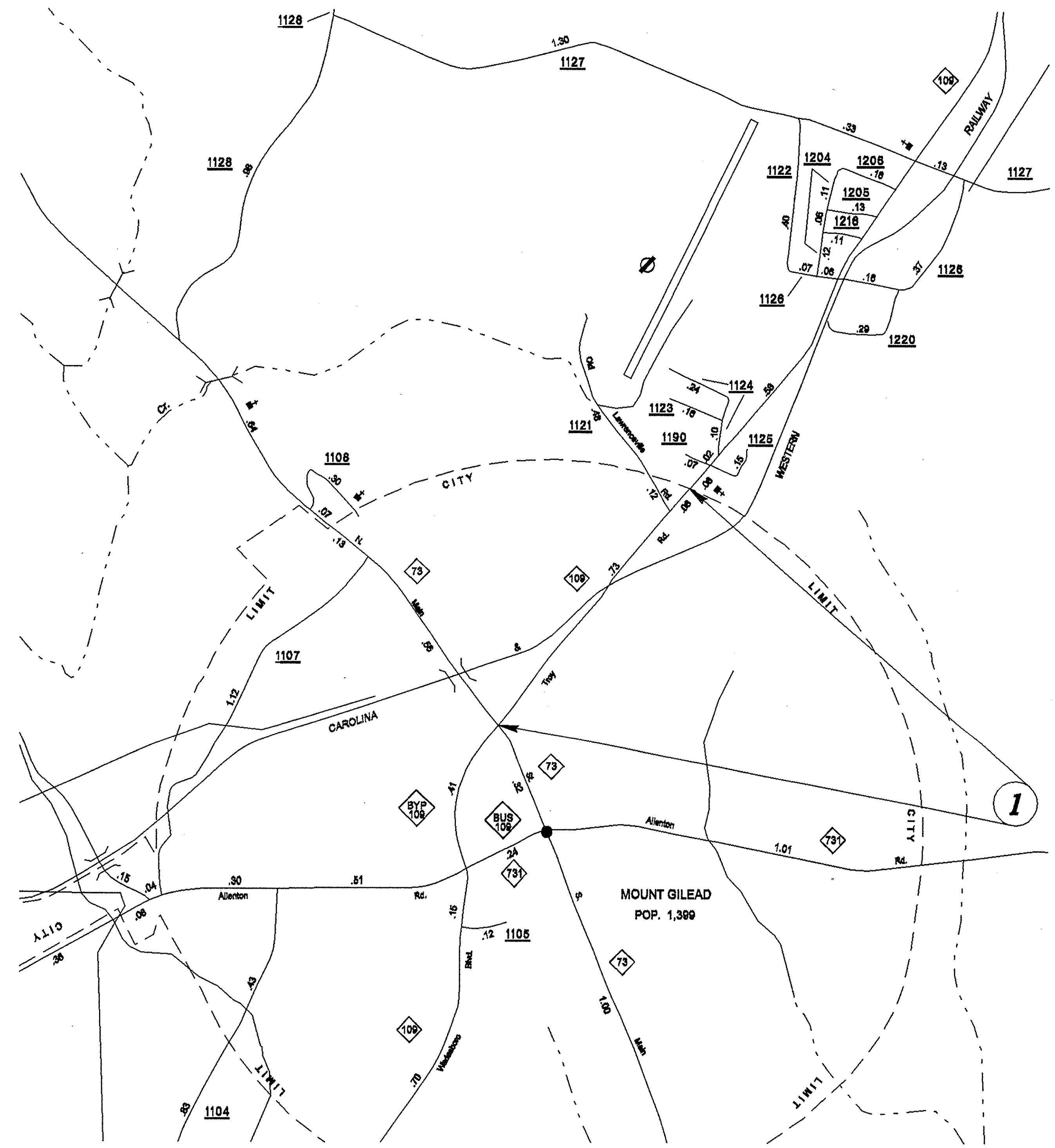
MONTGOMERY COUNTY

NORTH CAROLINA

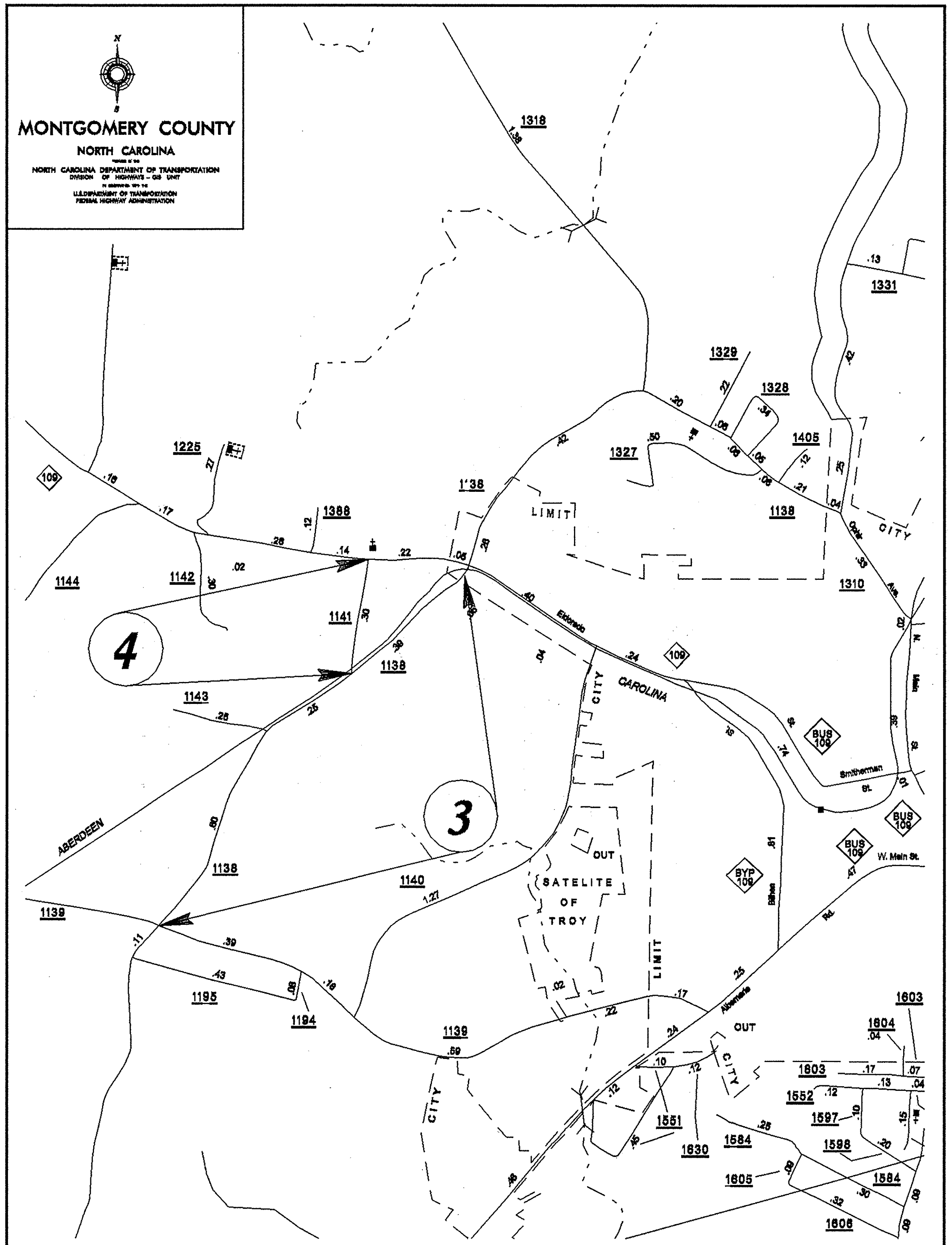
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS – GIS UNIT

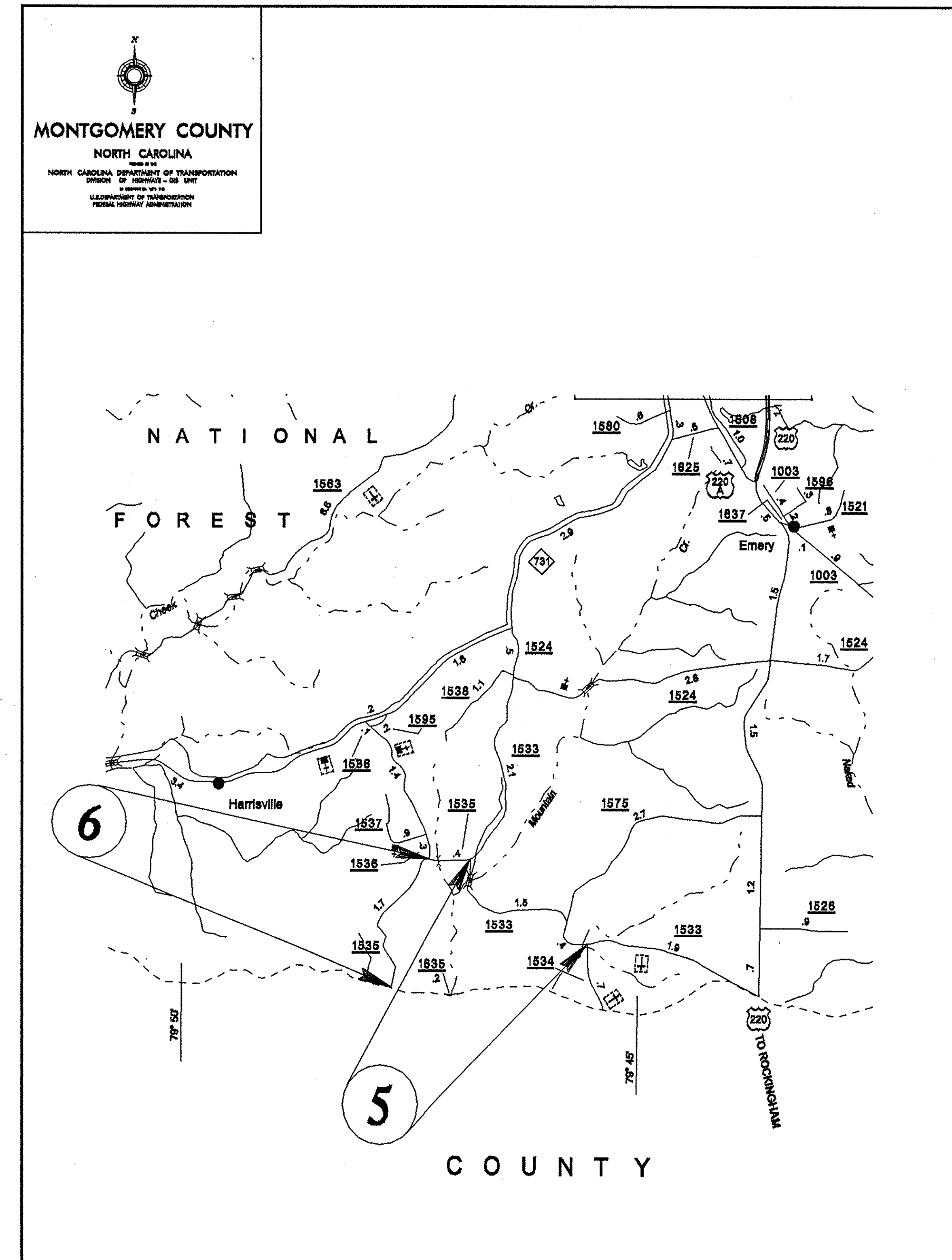
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION





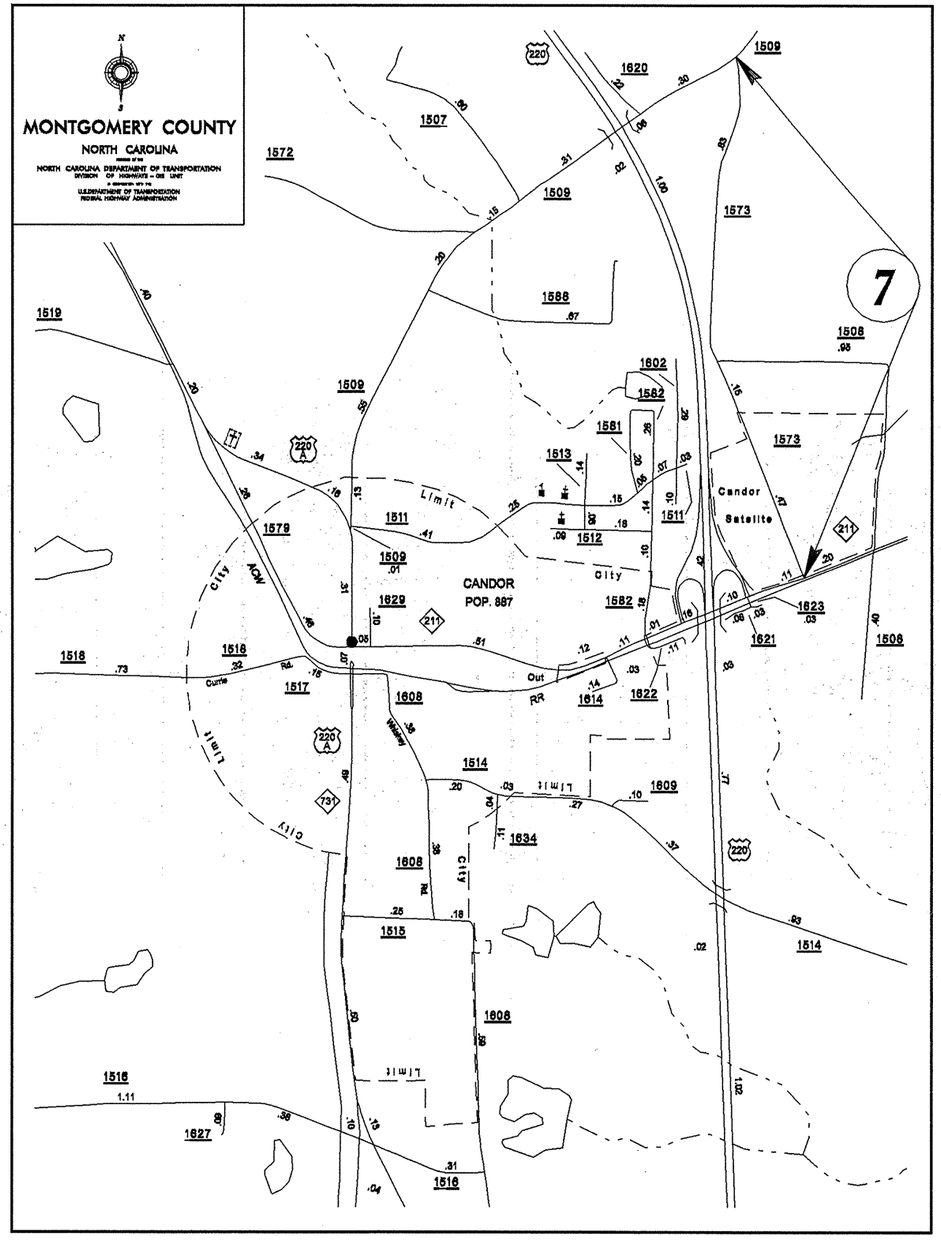
WBS ELEMENT	SHEET NO.
41294, 8CR.20621.6	2

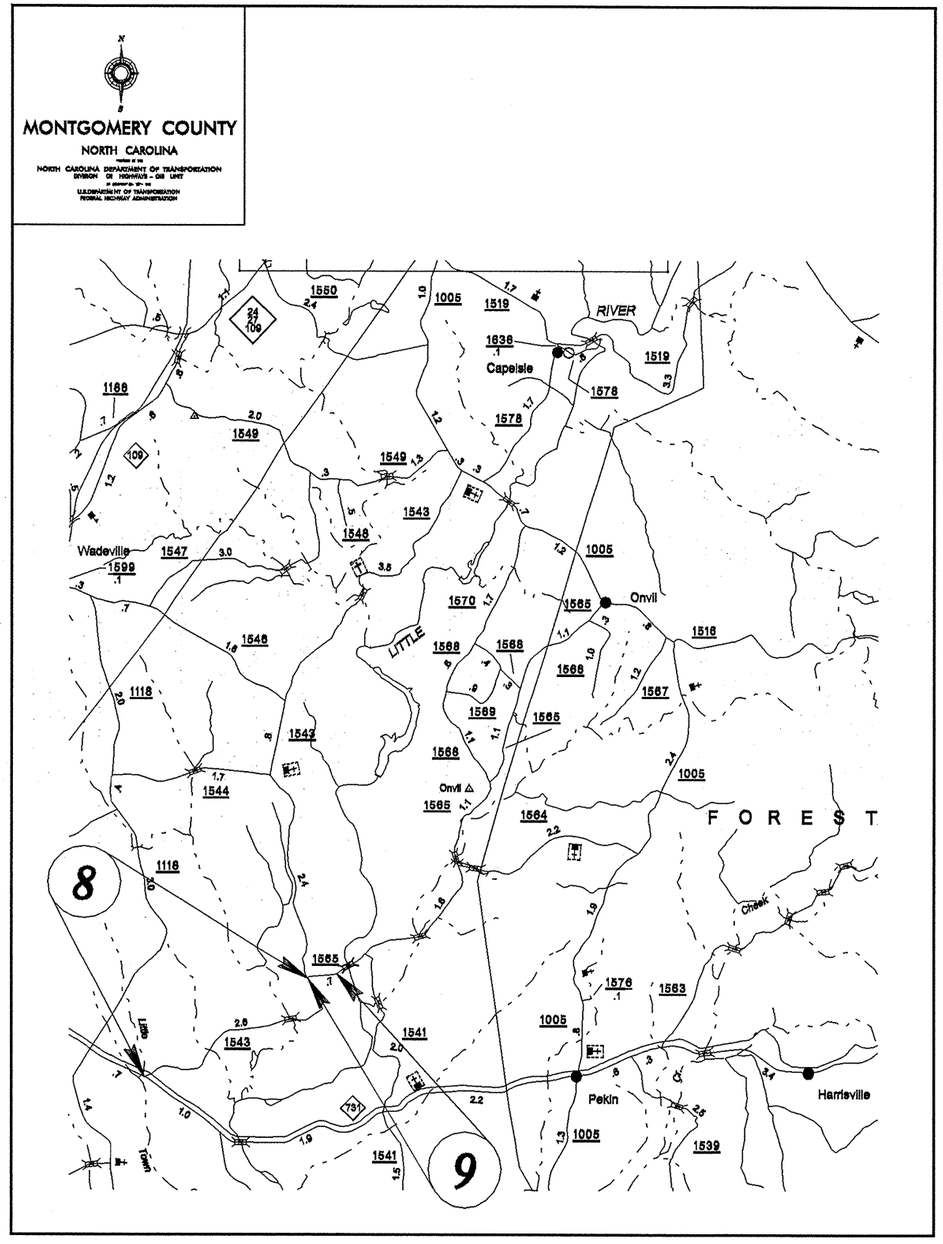




040397

WBS ELEMENT	SHEET NO.
41294, 8CR.20621.6	3





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$$$$USERNAME$$$$

PROJECT NO.	SHEET NO.	TOTAL NO.
41294, 8CR.20621.6	4	6

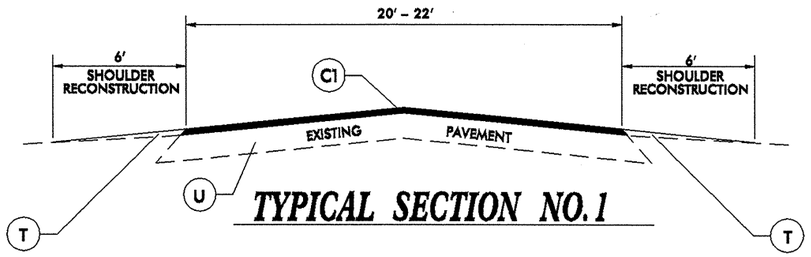
SUMMARY OF QUANTITIES

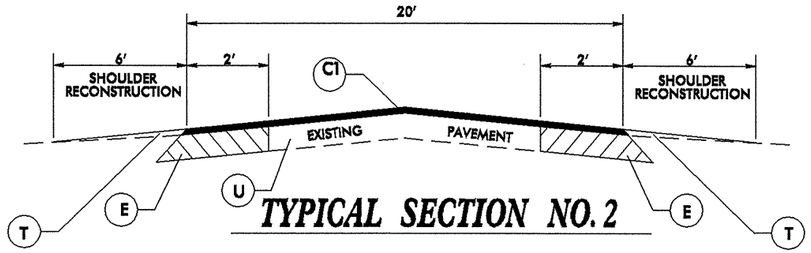
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	SHOULDER RECON-STRUCTION SMI	1½" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTER-MEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, S9.5C TONS	PG 64-22 PLANT MIX TONS	PG 70-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	WHEEL-CHAIR RAMPS EA	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	SEED & MULCHING AC	INDUCTIVE LOOP LF
41294	Montgomery	1	NC 109	FROM NC 73 TO NCL OF MT. GILEAD	3,4,5	0.81	33			10,500	200				2,360		142	15	7	3	4		
		2	NC 134	FROM SR 1377 TO RANDOLPH CO.	6	4.89	24	250	9.78		200		14,050		5,900	656	354	75				7.10	200
TOTAL FOR PROJ NO. 41294						**5.7**		**250**	**9.78**	**10,500**	**400**		**14,050**		**8,260**	**656**	**496**	**90**	**7**	**3**	**4**	**7.10**	**200**
8CR.20621.6	Montgomery	3	SR 1138	FROM SR 1139 TO PVT. JT. @ RR XING	1	1.28	20	65	2.56		100			1,300		78		20				1.80	
		4	SR 1141	FROM SR 1138 TO NC 109	1	0.3	22	15	0.6		100			330		20		5				0.40	
		5	SR 1533	FROM SR 1534 TO SR 1535	1	2	20	100	4		620			2,100		126		30				2.90	
		6	SR 1535	FROM SR 1536 TO RICH. CO. LINE	2	1.65	20	85	3.3		100	1,300		1,685		157		25				2.40	
		7	SR 1573	FROM NC 211 TO SR 1509	1	1.45	20	75	2.9		100			1,510		91		30				2.10	
		8	SR 1543	FROM NC 731 TO SR 1565	2	2.6	20	130	5.2		600	2,030		2,670		247		40				3.80	
		9	SR 1565	FROM SR 1543 FOR 0.35 MILE EAST	2	0.35	20	25	0.7		100	275		375		34						0.50	
TOTAL FOR PROJ NO. 8CR.20621.6						**9.63**		**495**	**19.26**		**1,720**	**3,605**		**9,970**		**753**		**150**				**13.90**	
GRAND TOTAL						**15.33**		**745**	**29.04**	**10,500**	**2,120**	**3,605**	**14,050**	**9,970**	**8,260**	**1,409**	**496**	**240**	**7**	**3**	**4**	**21.00**	**200**

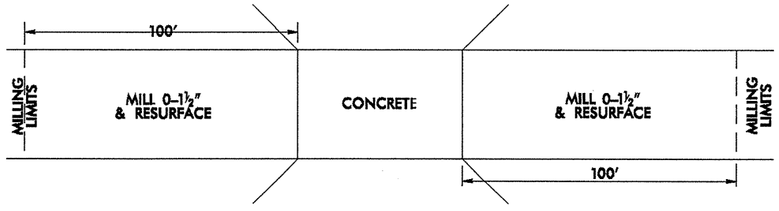
PROJECT NO.	SHEET NO.	TOTAL NO.
41294, 8CR.20621.6	5	6

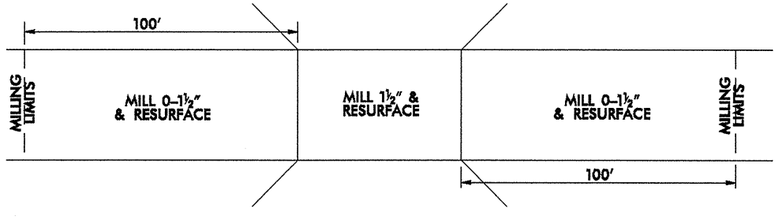
THERMOPLASTIC AND PAINT QUANTITIES

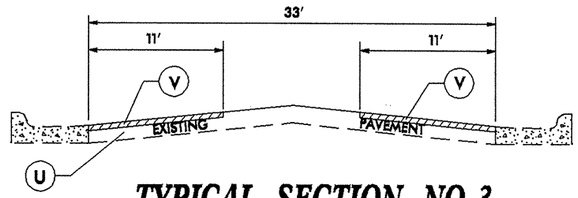
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E 4" X 90 M WHITE THERMO LF	4686000000-E 4" X 120 M WHITE THERMO LF	4686000000-E 4" X 120 M YELLOW THERMO LF	4705000000-E 16" X 120 M WHITE THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4721000000-E THERMO RXR 120 M EA	4725000000-E THERMO LT ARROW 90 M EA	4725000000-E THERMO RT ARROW 90 M EA	4725000000-E THERMO STR & RT ARROW 90 M EA	4810000000-E 4" YELLOW PAINT LF	4810000000-E 4" WHITE PAINT LF	4900000000-N YELLOW & YELLOW MARKERS EA	4900000000-N CYAN & RED MARKERS EA
41294	Montgomery	1	NC 109	FROM NC 73 TO NCL OF MT. GILEAD	9,000	20	11,500	100	100	4	12	11	3				150
		2	NC 134	FROM SR 1377 TO RANDOLPH CO.	52,700		32,300							51,650	41,350	325	
TOTAL FOR PROJ NO. 41294					**61,700**	**20**	**43,800**	**100**	**100**	**4**	**12**	**11**	**3**	**51,650**	**41,350**	**325**	**150**
						43,820					**26**			**93,000**		**475**	
8CR.20621.6	Montgomery	3	SR 1138	FROM SR 1139 TO PVT. JT. @ RR XING				50	25	2				20,700	27,600		
		4	SR 1141	FROM SR 1138 TO NC 109				100	50	4				5,000	6,400		
		5	SR 1533	FROM SR 1534 TO SR 1535										31,875	42,500		
		6	SR 1535	FROM SR 1536 TO RICH. CO. LINE										26,625	35,500		
		7	SR 1573	FROM NC 211 TO SR 1509										23,100	30,700		
		8	SR 1543	FROM NC 731 TO SR 1565										42,000	56,000		
		9	SR 1565	FROM SR 1543 FOR 0.35 MILE EAST										5,700	7,600		
TOTAL FOR PROJ NO. 8CR.20621.6								**150**	**75**	**6**				**155,000**	**206,300**		
														361,300			
GRAND TOTAL					**61,700**	**20**	**43,800**	**250**	**175**	**10**	**12**	**11**	**3**	**206,650**	**247,650**	**325**	**150**
						43,820					**26**			**454,300**		**475**	

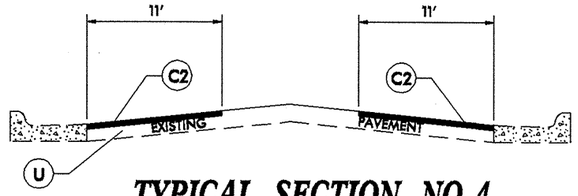


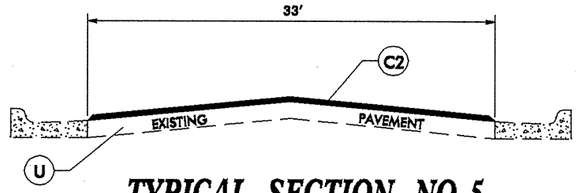


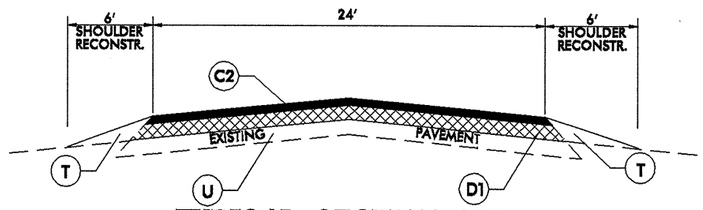












WBS ELEMENT	SHEET NO.
41294, 8CR.20621.6	6

TYPICAL SECTION NO.1

TYPICAL SECTION NO. 2

TYPICAL SECTION NO. 3

TYPICAL SECTION NO. 4

TYPICAL SECTION NO. 5

TYPICAL SECTION NO. 6

BRIDGE DRAWING FOR SR 1553
Use for Map No.5

* MILLING SHALL BE PAID FOR UNDER INCIDENTAL MILLING

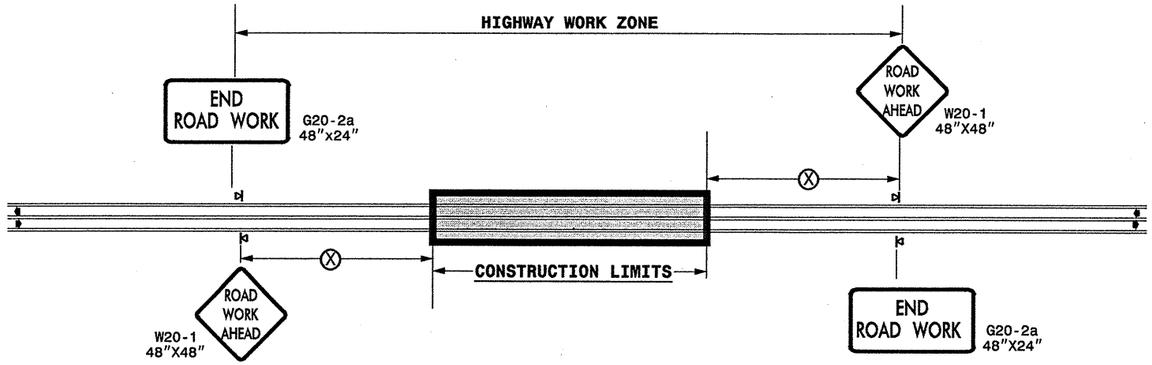
BRIDGE DRAWING FOR SR 1543
Use for Map No.8

* MILLING SHALL BE PAID FOR UNDER INCIDENTAL MILLING

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING 1½" IN DEPTH.

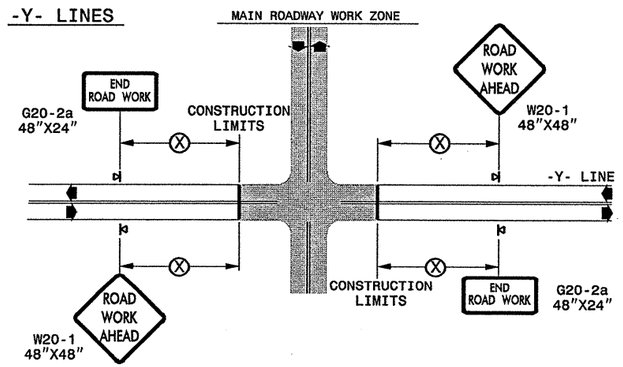
PROJ. REFERENCE NO.	SHEET NO.
41294 & 8CR.20621.6	TCP-1

TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING (X)
≤ 50	500′
≥ 55	1000′

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

PORTABLE SIGN

DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

DETAIL DRAWING FOR TWO-WAY UNDIVIDED WORK ZONE WARNING SIGNS

SHEET 1 OF 1

APPROVED:_____ DATE:_____

SEAL

DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
ADVANCED WORK ZONE WARNING SIGNS

SCALE:	NONE
DATE:	
DWG. BY:	
DESIGN BY:	
REVIEWED BY:	

REVISIONS	
7-98	10/01
10-98	03/04
01/01	11/04
CADD FILE	

03-JAN-2007 13:15
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pseymore AT WZTC206427

TWO LANE, TWO WAY WORK ZONE (L-LINES)

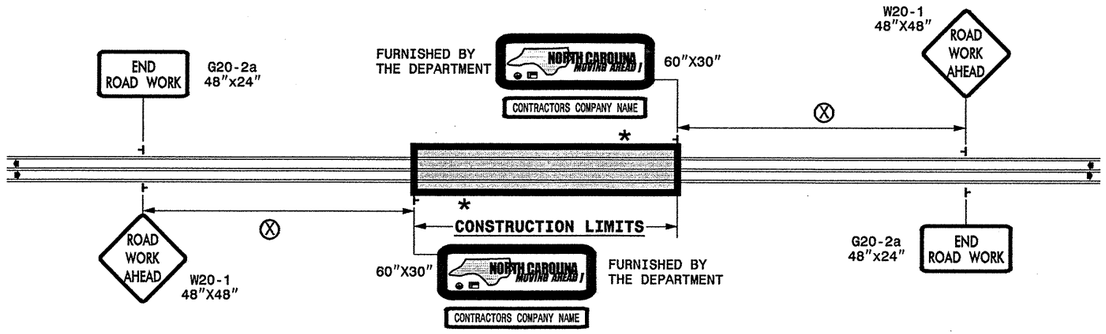
FURNISHED BY THE DEPARTMENT

NORTH CAROLINA MOVING AHEAD !

60"X30"

CONTRACTORS COMPANY NAME

60" Max. X 12"



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING Ⓧ
P.S.L. ≤ 50	350'
P.S.L. ≥ 55	500'

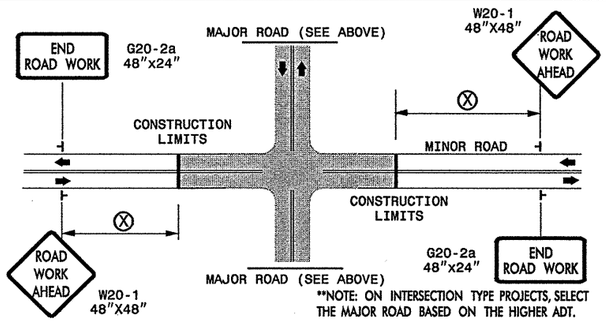
* ROAD WORK NEXT XX MILES G20-1A 60"X24"

THIS SIGN TO BE USED ON PROJECTS LONGER THAN 2 MILES

THE NUMBER DISPLAYED ON THE SIGN IS TO BE A WHOLE NUMBER ROUNDED UP TO THE NEXT MILE

IT'S TO BE LOCATED 1,500 FEET INSIDE OF THE CONSTRUCTION LIMITS

INTERSECTIONS (-Y- LINES)

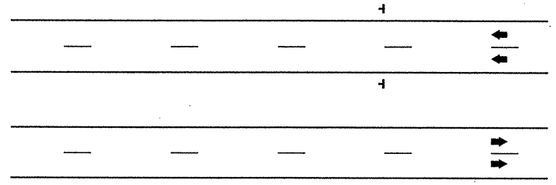


**NOTE: ON INTERSECTION TYPE PROJECTS, SELECT THE MAJOR ROAD BASED ON THE HIGHER ADT.

FREEWAYS/INTERSTATES

DUAL MOUNT "ROAD WORK AHEAD" SIGNS 1,000' IN ADVANCE OF PROJECT LIMITS

DUAL MOUNT "MOVING AHEAD" SIGNS 500' IN ADVANCE OF PROJECT LIMITS



GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED. USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.

LEGEND

⊢ STATIONARY SIGN

DIRECTION OF TRAFFIC FLOW

PROJ. REFERENCE NO.	SHEET NO.
41294 & 8CR.20621.6	NCMA-1

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

DETAIL DRAWING FOR ADVANCE WARNING WORK ZONE SIGNS

SHEET 1 OF 1

APPROVED:_____ DATE:_____

SEAL

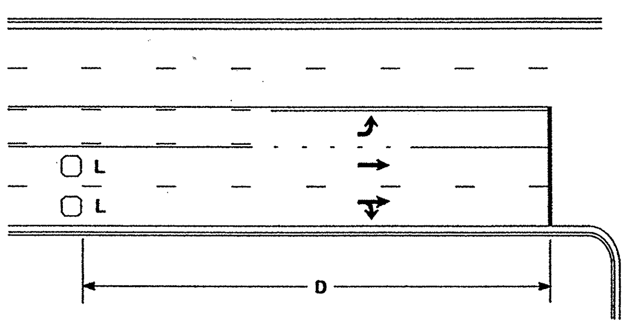
ADVANCE WARNING WORK ZONE SIGNS FOR "MOVING AHEAD"

SCALE:	NONE
DATE:	07/03
DWG. BY:	JSK
DESIGN BY:	JSK
REVIEWED BY:	SK
CADD FILE	

REVISIONS	
11/04	
12/04	

PROJECT REFERENCE NO.	SHEET NO.
	SIG 1

High Speed Detection
[≥40 mph (64 km/hr)]



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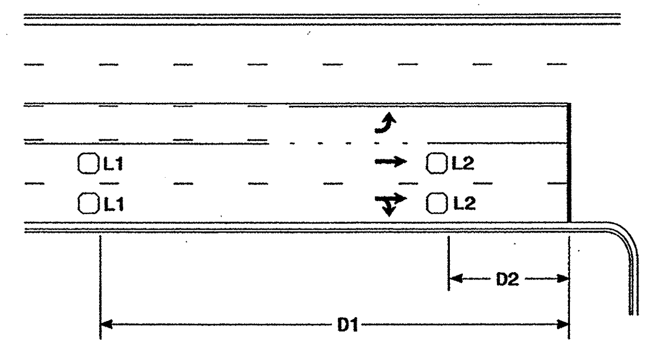


Speed Limit mph (km/hr)	D ft	(m)
40 (64)	250	(75)
45 (72)	300	(90)
50 (80)	355	(110)
55 (88)	420	(130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1 Controllers
Wired separately for TS2, 170, and 2070L Controllers

Volume Density Operation

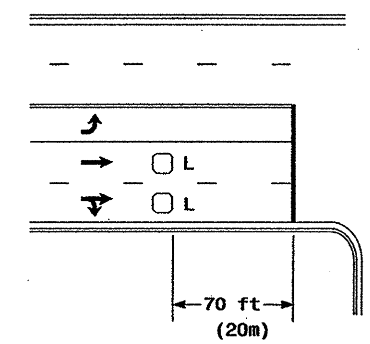
Speed Limit mph (km/hr)	D1 ft	(m)	D2 ft	(m)
40 (64)	250	(75)	80	(25)
45 (72)	300	(90)	90	(27)
50 (80)	355	(110)	100	(30)
55 (88)	420	(130)	110	(35)

L1 = 6ft X 6ft (1.8m X 1.8m) Wired in series

L2 = 6ft X 6ft (1.8m X 1.8m) Wired in series

"Stretch" Operation

Low Speed Detection
[≤35 mph (56 km/hr)]



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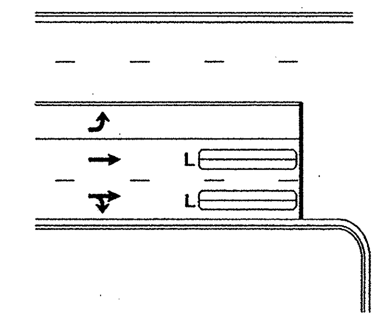
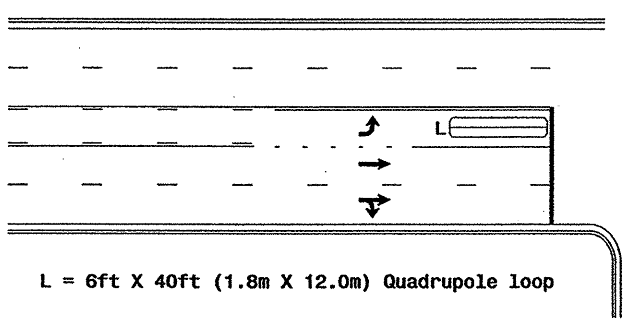


L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

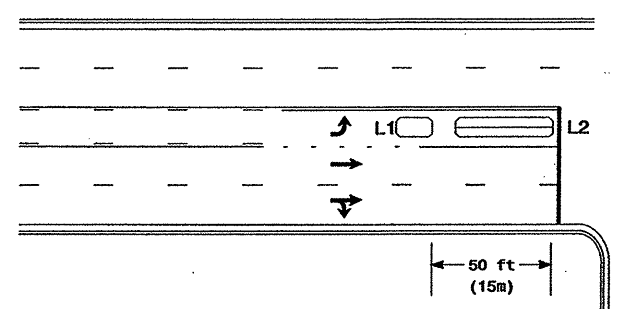
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

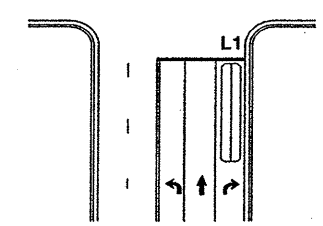
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

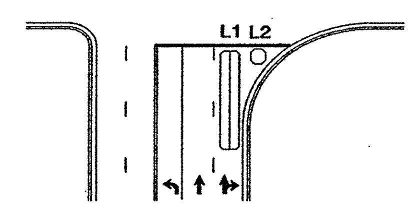
Queue Loop Detection

Right Turn Lane Detection

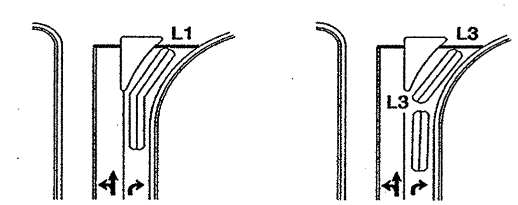


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

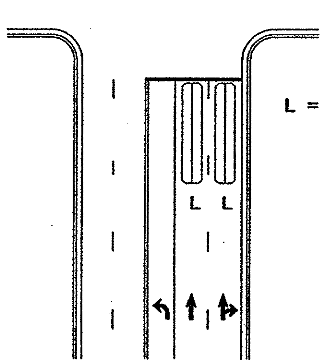


Wide Radius Turn



Channelized Turn

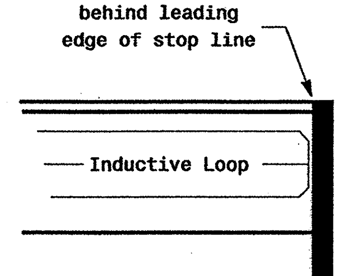
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate detectors/channels

Presence Loop Placement at Stop Lines

Locate loop slightly behind leading edge of stop line



Note:
Loop may be located in advance of stop line when stop line is greater than 15′ (4.5m) from edge of intersecting roadway; or, when loop detects a permissive or protected/permissive left turn.

Recommended Number of Turns

Single 6′ X 6′ (1.8m X 1.8m) loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole loops: Use 2-4-2 turns

6′ X 15′ (1.8m X 4.6m) Loops:
Lead-in < 150′ (45 m), use 2 turns
Lead-in > 150′ (45 m), use 3 turns

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Typical Loop Locations

PLAN DATE: June 2006 REVIEWED BY:
PREPARED BY: P L Alexander REVIEWED BY:

SCALE
N/A

REVISIONS	INIT.	DATE
Revise pavement markings		12/1/06

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23486 PAMELA ALEXANDER
6/6/06
SIGNATURE DATE
SIG. INVENTORY NO.

19-DEC-2006 14:29
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